

**ABSTRACT****THE PHYSICAL CHARACTERISTICS OF *Lactobacillus casei* MICROPARTICLES WITH 0,5% AND 1,0% LEVELS OF METHACRYLIC ACID COPOLYMER L-TYPE  
(By Spray Drying Method at Inlet Temperature of 110 °C)**

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Probiotics are living organisms that provide health benefits such as improving normal flora balance and have immunomodulatory effects when consumed in sufficient quantities by the host (ie, human or animal). A special delivery system is needed to protect probiotics in their target of action, namely intestine. One of the delivery system is microparticle trapping which can protect the probiotics from extreme environments in the stomach. The objective of this study was to discover the effect of methacrylic acid copolymer L type content (0,5% and 1,0%) to physical characteristic of *Lactobacillus casei* microparticles made by spray dry method. The matrix used was methacrylic acid copolymer L type with various concentration in the formula I and II, 0.5% and 1.0% respectively. The observations on the physical characteristics of the microparticles were performed in both formulas. The particle size of formulas I and II was 3.65  $\mu\text{m}$  and 4.07  $\mu\text{m}$ . The increasing levels of formula I to II decreased the moisture content from 9.56% to 7.34%. It could be seen that the higher content was, the smoother surface of the microparticle had become. In addition, there was basin on the surface, not porous and had more spherical form. The FTIR spectra results indicated that there was more significant reduction of -OH and C=O groups in formula I to II than the uptake of -OH band and C=O band in methacrylic acid copolymer L type. Thus, it showed that the hydrogen bonds had been formed on *Lactobacillus casei* microparticles.

**Keywords:** Probiotic, microparticles, methacrylic acid copolymer L-type, physical characterization, *Lactobacillus casei*, spray dry